



## SEQUENCE LISTING

```
<110> HORN, CARSTEN
      HANDLER, ALFRED
<120> SYSTEMS FOR GENE TARGETING AND PRODUCING STABLE GENOMIC
      TRANSGENE INSERTIONS
<130> 800-81
<140> 10/534,226
<141> 2005-05-06
<150> PCT/US03/035587
<151> 2003-11-07
<150> DE 102 51 918.8
<151> 2002-11-07
<160> 24
<170> PatentIn Ver. 3.3
<210> 1
<211> 9096
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      vector sequence
<400> 1
ctaaattgta agcgttaata ttttgttaaa attcgcgtta aatttttgtt aaatcagctc 60
attttttaac caataggccg aaatcggcaa aatcccttat aaatcaaaag aatagaccga 120
gatagggttg agtgttgttc cagtttggaa caagagtcca ctattaaaga acgtggactc 180
caacgtcaaa gggcgaaaaa ccgtctatca gggcgatggc ccactacgtg aaccatcacc 240
ctaatcaagt tttttggggt cgaggtgccg taaagcacta aatcggaacc ctaaagggag 300
cccccgattt agagcttgac ggggaaagcc ggcgaacgtg gcgagaaagg aagggaagaa 360
agcgaaagga gcgggcgcta gggcgctggc aagtgtagcg gtcacgctgc gcgtaaccac 420
cacaccegee gegettaatg egeegetaca gggegegtee cattegeeat teaggetgeg 480
caactgttgg gaagggcgat cggtgcgggc ctcttcgcta ttacgccagc tggcgaaagg 540
gggatgtgct gcaaggcgat taagttgggt aacgccaggg ttttcccagt cacgacgttg 600
taaaacgacg gccagtgagc gcgcctcgtt cattcacgtt tttgaacccg tggaggacgg 660
gcagactcgc ggtgcaaatg tgttttacag cgtgatggag cagatgaaga tgctcgacac 720
gctgcagaac acgcagctag attaacccta gaaagataat catattgtga cgtacgttaa 780
agataatcat gcgtaaaatt gacgcatgtg ttttatcggt ctgtatatcg aggtttattt 840
attaatttga atagatatta agttttatta tatttacact tacatactaa taataaattc 900
aacaaacaat ttatttatgt ttatttattt attaaaaaaa aacaaaaact caaaatttct 960
totataaaqt aacaaaactt ttatogaatt ootgoagcoo gggggatoca otagttotag 1020
tgttcccaca atggttaatt cgagctcgcc cggggatcta attcaattag agactaattc 1080
aattagaget aatteaatta ggateeaage ttategattt egaaceeteg acegeeggag 1140
tataaataga ggcgcttcgt ctacggagcg acaattcaat tcaaacaagc aaagtgaaca 1200
cgtcgctaag cgaaagctaa gcaaataaac aagcgcagct gaacaagcta aacaatcggg 1260
gtaccgctag agtcgacggt acgatccacc ggtcgccacc atggtgagca agggcgagga 1320
gctgttcacc ggggtggtgc ccatcctggt cgagctggac ggcgacgtaa acggccacaa 1380
gttcagcgtg tccggcgagg gcgagggcga tgccacctac ggcaagctga ccctgaagtt 1440
catctgcacc accggcaagc tgcccgtgcc ctggcccacc ctcgtgacca ccctgacctg 1500
```

```
gggcgtgcag tgcttcagcc gctaccccga ccacatgaag cagcacgact tcttcaagtc 1560
cgccatgccc gaaggctacg tecaggageg caccatette tteaaggaeg aeggcaacta 1620
caagacccgc gccgaggtga agttcgaggg cgacaccctg gtgaaccgca tcgagctgaa 1680
gggcatcgac ttcaaggagg acggcaacat cctggggcac aagctggagt acaactacat 1740
cagccacaac gtctatatca ccgccgacaa gcagaagaac ggcatcaagg ccaacttcaa 1800
gateegecae aacategagg aeggeagegt geagetegee gaceaetaee ageagaacae 1860
ccccatcggc gacggccccg tgctgctgcc cgacaaccac tacctgagca cccagtccgc 1920
cctgagcaaa gaccccaacg agaagcgcga tcacatggtc ctgctggagt tcgtgaccgc 1980
cgccgggatc actctcggca tggacgagct gtacaagtaa agcggccgcg actctagatc 2040
ataatcagcc ataccacatt tgtagaggtt ttacttgctt taaaaaaacct cccacacctc 2100
cccctgaacc tgaaacataa aatgaatgca attgttgttg ttaacttgtt tattgcagct 2160
tataatggtt acaaataaag caatagcatc acaaatttca caaataaagc attttttca 2220
ctgcattcta gttgtggttt gtccaaactc atcaatgtat cttaaagctt atcgatacgc 2280
gtacggcgcg cctaggccgg ccgatactag agcggccgcc accgcggtgg agctccagct 2340
tttgttccct ttagtgaggg ttaattagat cttaatacga ctcactatag ggcgaattgg 2400
gtaccgggcc ccccctcgag gtcgacggta tcgataagct tgatatctat aacaagaaaa 2460
tatatatata ataagttatc acgtaagtag aacatgaaat aacaatataa ttatcgtatg 2520
agttaaatct taaaagtcac gtaaaagata atcatgcgtc attttgactc acgcggtcgt 2580
tatagttcaa aatcagtgac acttaccgca ttgacaagca cgcctcacgg gagctccaag 2640
cggcgactga gatgtcctaa atgcacagcg acggattcgc gctatttaga aagagagagc 2700
aatatttcaa gaatgcatgc gtcaatttta cgcagactat ctttctaggg ttaatctagc 2760
tgcatcagga tcatatcgtc gggtcttttt tccggctcag tcatcgccca agctggcgct 2820
atctgggcat cggggaggaa gaagcccgtg ccttttcccg cgaggttgaa gcggcatgga 2880
aagagtttgc cgaggatgac tgctgctgca ttgacgttga gcgaaaacgc acgtttacca 2940
tgatgattcg ggaaggtgtg ggatacattg atgagtttgg acaaaccaca actagaatgc 3000
agtgaaaaaa atgctttatt tgtgaaattt gtgatgctat tgctttattt gtaaccatta 3060
taagctgcaa taaacaagtt aacaacaaca attgcattca ttttatgttt caggttcagg 3120
gggaggtgtg ggaggttttt taaagcaagt aaaacctcta caaatgtggt atggctgatt 3180
atgatetaga gtegeggeeg etacaggaac aggtggtgge ggeeeteggt gegetegtae 3240
tgctccacga tggtgtagtc ctcgttgtgg gaggtgatgt ccagcttgga gtccacgtag 3300
tagtagccgg gcagctgcac gggcttcttg gccatgtaga tggacttgaa ctccaccagg 3360
tagtggccgc cgtccttcag cttcagggcc ttgtggatct cgcccttcag cacgccgtcg 3420
cgggggtaca ggcgctcggt ggaggcctcc cagcccatgg tcttcttctg cattacgggg 3480
ccgtcggagg ggaagttcac gccgatgaac ttcaccttgt agatgaagca gccgtcctgc 3540
agggaggagt cttgggtcac ggtcaccacg ccgccgtcct cgaagttcat cacgcgctcc 3600
cacttgaagc cctcggggaa ggacagcttc ttgtagtcgg ggatgtcggc ggggtgcttc 3660
acgtacacct tggagccgta ctggaactgg ggggacagga tgtcccaggc gaagggcagg 3720
gggccgccct tggtcacctt cagcttcacg gtgttgtggc cctcgtaggg gcggccctcg 3780
ccctcgccct cgatctcgaa ctcgtggccg ttcacggtgc cctccatgcg caccttgaag 3840
cgcatgaact ccttgatgac gttcttggag gagcgcacca tggtggcgac cggtggatcc 3900
ccgatctgca ttttggatta ttctgcgggt caaaatagag atgtggaaaa ttagtacgaa 3960
atcaaatgag tttcgttgaa attacaaaac tattgaaact aacttcctgg ctggggaata 4020
aaaatgggaa acttatttat cgacgccaac tttgttgaga aacccctatt aaccctctac 4080
gaatattgga acaaaggaaa gcgaagaaac aggaacaaag gtagttgaga aacctgttcc 4140
gttgctcgtc atcgttttca taatgcgagt gtgtgcatgt atatatacac agctgaaacg 4200
catgcataca cattattttg tgtgtatatg gtgacgtcac aactactaag caataagaaa 4260
ttttccagac gtggctttcg tttcaagcaa cctactctat ttcagctaaa aataagtgga 4320
tttcgttggt aaaatacttc aattaagcaa agaactaact aactaataac atgcacacaa 4380
atgetegagt gegttegtga tttetegaat ttteaaatge gteaetgega attteacaat 4440
ttgccaataa atcttggcga aaatcaacac gcaagtttta tttatagatt tgtttgcgtt 4500
ttgatgccaa ttgattggga aaacaagatg cgtggctgcc aatttcttat tttgtaatta 4560
cgtagagcgt tgaataaaaa aaaaatggcc gaacaaagac cttgaaatgc agtttttctt 4620
gaaattactc aacgtcttgt tgctcttatt actaattggt aacagcgagt taaaaactta 4680
cgtttcttgt gactttcgag aatgttcttt taattgtact ttaatcacca acaattaagt 4740
ataaattttt cgctgattgc gctttacttt ctgcttgtac ttgctgctgc aaatgtcaat 4800
tggttttgaa ggcgaccgtt cgcgaacgct gtttatatac cttcggtgtc cgttgaaaat 4860
cactaaaaaa taccgtagtg ttcgtaacac tttagtacag agaaaaaaaa ttgtgccgaa 4920
atgtttttga tacgtacgaa taccttgtat taaaattttt tatgatttct gtgtatcact 4980
```

```
tttttttttgt gtttttcgtt taaactcacc acagtacaaa acaataaaat atttttaaga 5040
caatttcaaa ttgagacctt tctcgtactg acttgaccgg ctgaatgagg atttctacct 5100
agacgaccta cttcttacca tgacattgaa tgcaatgcca cctttgatct aaacttacaa 5160
aagtccaagg cttgttagga ttggtgttta tttagtttgc ttttgaaata gcactgtctt 5220
ctctaccggc tataattttg aaactcgcag cttgactgga aatttaaaaa gtaattctgt 5280
gtaggtaaag ggtgttttaa aagtgtgatg tgttgagcgt tgcggcaacg actgctattt 5340
atgtatatat tttcaaaact tattgttttt gaagtgtttt aaatggagct atctggcaac 5400
gctgcgcata atcttacaca agcttttctt aatccatttt taagtgaaat ttgtttttac 5460
tctttcggca aataattgtt aaatcgcttt aagtgggctt acatctggat aagtaatgaa 5520
aacctgcata ttataatatt aaaacatata atccactgtg ctttccccgt gtgtggccat 5580
atacctaaaa aagtttattt tegcagagee eegcaeggte acactaeggt teggegattt 5640
tcgattttgg acagtactga ttgcaagcgc accgaaagca aaatggagct ggagattttg 5700
aacgcgaaga acagcaagcc gtacggcaag gtgaaggtgc cctccggcgc cacgcccatc 5760
ggcgatctgc gcgccctaat tcacaagacc ctgaagcaga ccccacacgc gaatcgccag 5820
tcgcttcgtc tggaactgaa gggcaaaagc ctgaaagata cggacacatt ggaatctctg 5880
tegetgegtt eeggegacaa gategggtae egtegaetge agaattegaa gettgagete 5940
gagatctgac aatgttcagt gcagagactc ggctacgcct cgtggacttt gaagttgacc 6000
aacaatgttt attettaeet etaatagtee tetgtggeaa ggteaagatt etgttagaag 6060
ccaatgaaga acctggttgt tcaataacat tttgttcgtc taatatttca ctaccgcttg 6120
acgttggctg cacttcatgt acctcatcta taaacgcttc ttctgtatcg ctctggacgt 6180
catcttcact tacgtgatct gatatttcac tgtcagaatc ctcaccaaca agctcgtcat 6240
cgctttgcag aagagcagag aggatatgct catcgtctaa agaactaccc attttattat 6300
atattagtca cgatatctat aacaagaaaa tatatatata ataagttatc acgtaagtag 6360
aacatgaaat aacaatataa ttatcgtatg agttaaatct taaaagtcac gtaaaagata 6420
atcatgcgtc attttgactc acgcggtcgt tatagttcaa aatcagtgac acttaccgca 6480
ttgacaagca cgcctcacgg gagctccaag cggcgactga gatgtcctaa atgcacagcg 6540
acggattcgc gctatttaga aagagagagc aatatttcaa gaatgcatgc gtcaatttta 6600
cgcagactat ctttctaggg ttaaaaaaga tttgcgcttt actcgaccta aactttaaac 6660
acgttaacca tgcacgcctt taacggtgaa ctgttcgttc aggccacctg ggataccagt 6720
tegtegegge titteeggae acagiteegg atggicagee egaagegeat cageaaceeg 6780
aacaataccg gcgacagccg gaactgccgt gccggtgtgc agattaatga cagcggtgcg 6840
gcgctgggat attacgtcag cgaggacggg tatcctggct ggatgccgca gaaatggaca 6900
tggatacccc gtgagttacc cggcgggcgc gcttggcgta atcatggtca tagctgtttc 6960
ctgtgtgaaa ttgttatccg ctcacaattc cacacaacat acgagccgga agcataaagt 7020
gtaaagcctg gggtgcctaa tgagtgagct aactcacatt aattgcgttg cgctcactgc 7080
ccgctttcca gtcgggaaac ctgtcgtgcc agctgcatta atgaatcggc caacgcgcgg 7140
ggagaggcgg tttgcgtatt gggcgctctt ccgcttcctc gctcactgac tcgctgcgct 7200
cggtcgttcg gctgcggcga gcggtatcag ctcactcaaa ggcggtaata cggttatcca 7260
cagaatcagg ggataacgca ggaaagaaca tgtgagcaaa aggccagcaa aaggccagga 7320
accgtaaaaa ggccgcgttg ctggcgtttt tccataggct ccgccccct gacgagcatc 7380
acaaaaatcg acgctcaagt cagaggtggc gaaacccgac aggactataa agataccagg 7440
cgtttccccc tggaagctcc ctcgtgcgct ctcctgttcc gaccctgccg cttaccggat 7500
acctgtccgc ctttctccct tcgggaagcg tggcgctttc tcatagctca cgctgtaggt 7560
atctcagttc ggtgtaggtc gttcgctcca agctgggctg tgtgcacgaa ccccccgttc 7620
agcccgaccg ctgcgcctta tccggtaact atcgtcttga gtccaacccg gtaagacacg 7680
acttatcgcc actggcagca gccactggta acaggattag cagagcgagg tatgtaggcg 7740
gtgctacaga gttcttgaag tggtggccta actacggcta cactagaagg acagtatttg 7800
gtatctgcgc tctgctgaag ccagttacct tcggaaaaag agttggtagc tcttgatccg 7860
gcaaacaaac caccgctggt agcggtggtt tttttgtttg caagcagcag attacgcgca 7920
gaaaaaaagg atctcaagaa gatcctttga tcttttctac ggggtctgac gctcagtgga 7980
acgaaaactc acgttaaggg attttggtca tgagattatc aaaaaggatc ttcacctaga 8040
tccttttaaa ttaaaaatga agttttaaat caatctaaag tatatatgag taaacttggt 8100
ctgacagtta ccaatgctta atcagtgagg cacctatctc agcgatctgt ctatttcgtt 8160
catccatagt tgcctgactc cccgtcgtgt agataactac gatacgggag ggcttaccat 8220
ctggccccag tgctgcaatg ataccgcgag acccacgctc accggctcca gatttatcag 8280
caataaacca gccagccgga agggccgagc gcagaagtgg tcctgcaact ttatccgcct 8340
ccatccagtc tattaattgt tgccgggaag ctagagtaag tagttcgcca gttaatagtt 8400
tgcgcaacgt tgttgccatt gctacaggca tcgtggtgtc acgctcgtcg tttggtatgg 8460
```

```
cttcattcag ctccggttcc caacgatcaa ggcgagttac atgatccccc atgttgtgca 8520
aaaaagcggt tagctccttc ggtcctccga tcgttgtcag aagtaagttg gccgcagtgt 8580
tatcactcat ggttatggca gcactgcata attctcttac tgtcatgcca tccgtaagat 8640
gcttttctgt gactggtgag tactcaacca agtcattctg agaatagtgt atgcggcgac 8700
cgagttgctc ttgcccggcg tcaatacggg ataataccgc gccacatagc agaactttaa 8760
aagtgeteat cattggaaaa egttettegg ggegaaaact etcaaggate ttacegetgt 8820
tgagatccag ttcgatgtaa cccactcgtg cacccaactg atcttcagca tcttttactt 8880
tcaccagcgt ttctgggtga gcaaaaacag gaaggcaaaa tgccgcaaaa aagggaataa 8940
gggcgacacg gaaatgttga atactcatac tcttcctttt tcaatattat tgaagcattt 9000
atcagggtta ttgtctcatg agcggataca tatttgaatg tatttagaaa aataaacaaa 9060
taggggttcc gcgcacattt ccccgaaaag tgccac
<210> 2
<211> 8244
<212> DNA
<213> Artificial Sequence
```

<220>

<223> Description of Artificial Sequence: Synthetic vector sequence

<400> 2 gagctcgccc ggggatctaa ttcaattaga gactaattca attagagcta attcaattag 60 gatccaagct tatcgatttc gaaccctcga ccgccggagt ataaatagag gcgcttcgtc 120 tacggagcga caattcaatt caaacaagca aagtgaacac gtcgctaagc gaaagctaag 180 caaataaaca agcgcagctg aacaagctaa acaatcgggg tacccgggga tcttgaagtt 240 cctattccga agttcctatt ctctagaaag tataggaact tcagagcgct tttgaagcta 300 ggcggcccta gagtcgacgg tacgatccac cggtcgccac catggtgagc aagggcgagg 360 agctgttcac cggggtggtg cccatcctgg tcgagctgga cggcgacgta aacggccaca 420 agttcagcgt gtccggcgag ggcgagggcg atgccaccta cggcaagctg accctgaagt 480 tcatctgcac caccggcaag ctgcccgtgc cctggcccac cctcgtgacc accctgacct 540 ggggcgtgca gtgcttcagc cgctaccccg accacatgaa gcagcacgac ttcttcaagt 600 ccgccatgcc cgaaggctac gtccaggagc gcaccatctt cttcaaggac gacggcaact 660 acaagacccg cgccgaggtg aagttcgagg gcgacaccct ggtgaaccgc atcgagctga 720 agggcatcga cttcaaggag gacggcaaca tcctggggca caagctggag tacaactaca 780 tcagccacaa cgtctatatc accgccgaca agcagaagaa cggcatcaag gccaacttca 840 agateegeea caacategag gaeggeageg tgeagetege egaecaetae eageagaaca 900 ccccatcgg cgacggcccc gtgctgctgc ccgacaacca ctacctgagc acccagtccg 960 ccctgagcaa agaccccaac gagaagcgcg atcacatggt cctgctggag ttcgtgaccg 1020 ccgccgggat cactctcggc atggacgagc tgtacaagta aagcggccgc gactctagat 1080 cataatcagc cataccacat ttgtagaggt tttacttgct ttaaaaaaacc tcccacacct 1140 cccctgaac ctgaaacata aaatgaatgc aattgttgtt gttaacttgt ttattgcagc 1200 ttataatggt tacaaataaa gcaatagcat cacaaatttc acaaataaag cattttttc 1260 actgcattct agttgtggtt tgtccaaact catcaatgta tcttaaagct tatcgatacg 1320 cgtacggcgc gccaaaagct tctgtctctc tttctgtaat aaactaacga tttataaagt 1380 ataaaatgtc gtaatgttta tttttggcaa catgagttta attcgaaatt gaatcaaaca 1440 caataaaaaa aagttaaaag gttaaaatca ttatattaca tcattaattc gaattcattt 1500 qqqaaqtttg tgggtctatt ttttaaactt tatatgaatg tttgtttagt taatttaata 1560 aaggatatcg aacagtatgc cagttttggt atttagccaa ttggagatgt tcgatgagat 1620 gttcgaactg caaccgagtt cgaggttcca acacgactgt tatacgggtt ccagccttca 1680 aqttctacag aacaagtcca cgagcgccac acacagtcca cagtccacac tccactccgc 1740 tcggcgtgga agccattcgc ttcgtggcga agtgtttgtt tatccagttg acagtttgtg 1800 gaaaatcgtc acggtgagcg gatcaaacgc ggaaaacgaa cgcggacgaa cggcgagaaa 1860 agcgaggaaa aacgggtgca gagacagaga ctgattggga aatatgtgcg cctgagtttt 1920 cccggccaga aggcaaagtg ccaaatgctc tgacaaataa ttcctgtaat aatcagcgcg 1980 attgaaatca acgcgacgct cgtaaaattg caaatgcagc gcaaaaaagtg aacagcagtg 2040 cagcggaaat taaatcgttt tagcgagtgc caaacgggaa atagaaaatc ggcagagtag 2100

```
ccgaactgca gttaaaacta tctcttcctc ttattgcgac taaacaaccg gcggattaat 2160
cgaatccgaa agatggcccc caacttgcta acaatcggat tacttttgac cctgatcgcc 2220
ageggteagg cecateteaa tatttteete aaettgeaeg aggtgetgeg cetaateggt 2280
aagtaatcgt gttgattttc gcctgccttt tggcttttca attaactggg caattatttg 2340
ccactttgtg tgcgttcgtt cgactttaaa tcaaatttga tttatgccaa gccgggattt 2400
tgtctcctgg gcaaacgaat gcgacttgct gggattattt actctttttg cgtaaataat 2460
atatgccttt taattgtttc tagcctcgga gctacatata aagtagtatt gtccctcctt 2520
caattggcca gctcaccgag aaacaagaaa acattctatt tgtctagcat gatttcctgt 2580
ttctttgatt taattgttcg ttagacttat ctagataaat agaaatgcta aagcgattta 2640
aatttgtatt tetttgegtt aaattaaatt egattggeaa gtggatteat etetagataa 2700
gtaatccctc tataatcaaa gtttttattt aaaaaatcat atttttcat agtttatcca 2760
atttaaaaca atacaaaaca attttagata tattttataa acgtcttcaa aagaaaataa 2820
tttagtttat attatttatt tagcctaact attttccata gaagaatact actctaataa 2940
gcttggggta cccggggatc ttgaagttcc tattccgaag ttcctattct tcaaatagta 3000
taggaacttc agatctgaca atgttcagtg cagagactcg gctacgcctc gtggactttg 3060
aagttgacca acaatgttta ttottacoto taatagtoot otgtggcaag gtcaagatto 3120
tgttagaagc caatgaagaa cctggttgtt caataacatt ttgttcgtct aatatttcac 3180
taccgettga egttggetge actteatgta eeteatetat aaaegettet tetgtatege 3240
totggacgto atottoactt acgtgatotg atatttoact gtoagaatoo toaccaacaa 3300
gctcgtcatc gctttgcaga agagcagaga ggatatgctc atcgtctaaa gaactaccca 3360
ttttattata tattagtcac gatatctata acaagaaaat atatatata taagttatca 3420
cgtaagtaga acatgaaata acaatataat tatcgtatga gttaaatctt aaaagtcacg 3480
taaaagataa tcatgcgtca ttttgactca cgcggtcgtt atagttcaaa atcagtgaca 3540
cttaccgcat tgacaagcac gcctcacggg agctccaagc ggcgactgag atgtcctaaa 3600
tgcacagcga cggattcgcg ctatttagaa agagagagca atatttcaag aatgcatgcg 3660
tcaattttac gcagactatc tttctagggt taaaaaagat ttgcgcttta ctcgacctaa 3720
actttaaaca cgtcatagaa tcttcgtttg acaaaaacca cattgtggcc aagctgtgtg 3780
acgcgacgcg cgctaaagaa tggcaaacca agtcgcgcga gcgtcgactc tagaggatcc 3840
ccgggtaccg agctcgaatt cgtaatcatg gtcatagctg tttcctgtgt gaaattgtta 3900
tccgctcaca attccacaca acatacgagc cggaagcata aagtgtaaag cctggggtgc 3960
ctaatgagtg agctaactca cattaattgc gttgcgctca ctgcccgctt tccagtcggg 4020
aaacctgtcg tgccagctgc attaatgaat cggccaacgc gcggggagag gcggtttgcg 4080
tattgggcgc tcttccgctt cctcgctcac tgactcgctg cgctcggtcg ttcggctgcg 4140
gcgagcggta tcagctcact caaaggcggt aatacggtta tccacagaat caggggataa 4200
cgcaggaaag aacatgtgag caaaaggcca gcaaaaggcc aggaaccgta aaaaggccgc 4260
gttgctggcg tttttccata ggctccgccc ccctgacgag catcacaaaa atcgacgctc 4320
aagtcagagg tggcgaaacc cgacaggact ataaagatac caggcgtttc cccctggaag 4380
ctccctcgtg cgctctcctg ttccgaccct gccgcttacc ggatacctgt ccgcctttct 4440
cccttcggga agcgtggcgc tttctcaatg ctcacgctgt aggtatctca gttcggtgta 4500
ggtcgttcgc tccaagctgg gctgtgtgca cgaacccccc gttcagcccg accgctgcgc 4560
cttatccggt aactatcgtc ttgagtccaa cccggtaaga cacgacttat cgccactggc 4620
agcagccact ggtaacagga ttagcagagc gaggtatgta ggcggtgcta cagagttctt 4680
gaagtggtgg cctaactacg gctacactag aaggacagta tttggtatct gcgctctgct 4740
gaagccagtt accttcggaa aaagagttgg tagctcttga tccggcaaac aaaccaccgc 4800
tggtagcggt ggtttttttg tttgcaagca gcagattacg cgcagaaaaa aaggatctca 4860
agaagateet ttgatetttt etaeggggte tgaegeteag tggaaegaaa aeteaegtta 4920
agggattttg gtcatgagat tatcaaaaag gatcttcacc tagatccttt taaattaaaa 4980
atgaagtttt aaatcaatct aaagtatata tgagtaaact tggtctgaca gttaccaatg 5040
cttaatcagt gaggcaccta tctcagcgat ctgtctattt cgttcatcca tagttgcctg 5100
actccccgtc gtgtagataa ctacgatacg ggagggctta ccatctggcc ccagtgctgc 5160
aatgataccg cgagacccac gctcaccggc tccagattta tcagcaataa accagccagc 5220
cggaagggcc gagcgcagaa gtggtcctgc aactttatcc gcctccatcc agtctattaa 5280
ttgttgccgg gaagctagag taagtagttc gccagttaat agtttgcgca acgttgttgc 5340
cattgctaca ggcatcgtgg tgtcacgctc gtcgtttggt atggcttcat tcagctccgg 5400
ttcccaacga tcaaggcgag ttacatgatc ccccatgttg tgcaaaaaag cggttagctc 5460
cttcggtcct ccgatcgttg tcagaagtaa gttggccgca gtgttatcac tcatggttat 5520
ggcagcactg cataattctc ttactgtcat gccatccgta agatgctttt ctgtgactgg 5580
```

```
tgagtactca accaagtcat tctgagaata gtgtatgcgg cgaccgagtt gctcttgccc 5640
ggcgtcaata cgggataata ccgcgccaca tagcagaact ttaaaagtgc tcatcattgg 5700
aaaacgttct tcggggcgaa aactctcaag gatcttaccg ctgttgagat ccagttcgat 5760
gtaacccact cgtgcaccca actgatette ageatetttt actttcacca gegtttetgg 5820
gtgagcaaaa acaggaaggc aaaatgccgc aaaaaaggga ataagggcga cacggaaatg 5880
ttgaatactc atactcttcc tttttcaata ttattgaagc atttatcagg gttattgtct 5940
catgagcgga tacatatttg aatgtattta gaaaaataaa caaatagggg ttccgcgcac 6000
atttccccga aaagtgccac ctgacgtcta agaaaccatt attatcatga cattaaccta 6060
taaaaatagg cgtatcacga ggccctttcg tctcgcgcgt ttcggtgatg acggtgaaaa 6120
cctctgacac atgcagctcc cggagacggt cacagcttgt ctgtaagcgg atgccgggag 6180
cagacaagcc cgtcagggcg cgtcagcggg tgttggcggg tgtcggggct ggcttaacta 6240
tgcggcatca gagcagattg tactgagagt gcaccatatg cggtgtgaaa taccgcacag 6300
atgcgtaagg agaaaatacc gcatcaggcg ccattcgcca ttcaggctgc gcaactgttg 6360
ggaagggcga tcggtgcggg cctcttcgct attacgccag ctggcgaaag ggggatgtgc 6420
tgcaaggcga ttaagttggg taacgccagg gttttcccag tcacgacgtt gtaaaacgac 6480
ggccagtgcc aagctttgtt taaaatataa caaaattgtg atcccacaaa atgaagtggg 6540
gcaaaatcaa ataattaata gtgtccgtaa acttgttggt cttcaacttt ttgaggaaca 6600
cgttggacgg caaatccgtg actataacac aagttgattt aataatttta gccaacacgt 6660
cgggctgcgt gttttttgcc gacgcgtctg tgtacacgtt gattaactgg tcgattaaac 6720
tgttgaaata atttaatttt tggttcttct ttaaatctgt gatgaaattt tttaaaataa 6780
ctttaaattc ttcattggta aaaaatgcca cgttttgcaa cttgtgaggg tctaatatga 6840
ggtcaaactc agtaggagtt ttatccaaaa aagaaaacat gattacgtct gtacacgaac 6900
gcgtattaac gcagagtgca aagtataaga gggttaaaaa atatattta cgcaccatat 6960
acgcatcggg ttgatatcgt taatatggat caatttgaac agttgattaa cgtgtctctg 7020
ctcaagtctt tgatcaaaac gcaaatcgac gaaaatgtgt cggacaatat caagtcgatg 7080
agcgaaaaac taaaaaaggct agaatacgac aatctcacag acagcgttga gatatacggt 7140
attcacgaca gcaggctgaa taataaaaaa attagaaact attatttaac cctagaaaga 7200
taatcatatt gtgacgtacg ttaaagataa tcatgcgtaa aattgacgca tgtgttttat 7260
cggtctgtat atcgaggttt atttattaat ttgaatagat attaagtttt attatattta 7320
aaaaaacaaa aactcaaaat ttcttctata aagtaacaaa acttttaaac attctctctt 7440
ttacaaaaat aaacttattt tgtactttaa aaacagtcat gttgtattat aaaataagta 7500
attagcttaa cttatacata atagaaacaa attatactta ttagtcagtc agaaacaact 7560
ttggcacata tcaatattat gctctcgaca aataactttt ttgcattttt tgcacgatgc 7620
atttgccttt cgccttattt tagaggggca gtaagtacag taagtacgtt ttttcattac 7680
tggctcttca gtactgtcat ctgatgtacc aggcacttca tttggcaaaa tattagagat 7740
attatcgcgc aaatatctct tcaaagtagg agcttctaaa cgcttacgca taaacgatga 7800
cgtcaggctc atgtaaaggt ttctcataaa ttttttgcga ctttggacct tttctccctt 7860
gctactgaca ttatggctgt atataataaa agaatttatg caggcaatgt ttatcattcc 7920
gtacaataat gccataggcc acctattcgt cttcctactg caggtcatca cagaacacat 7980
ttggtctagc gtgtccactc cgcctttagt ttgattataa tacataacca tttgcggttt 8040
accggtactt tcgttgatag aagcatcctc atcacaagat gataataagt ataccatctt 8100
agctggcttc ggtttatatg agacgagagt aaggggtccg tcaaaacaaa acatcgatgt 8160
teccaetgge etggagegae tgttttteag taetteeggt atetegegtt tgtttgateg 8220
                                                                 8244
cacggttccc acaatggtta attc
```

```
<210> 3
<211> 8638
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic vector sequence
```

<400> 3
cgtcgctaag cgaaagctaa gcaaataaac aagcgcagct gaacaagcta aacaatcggg 60

```
gtacccgggg atcttgaagt tcctattccg aagttcctat tctctagaaa gtataggaac 120
ttcagagcgc ttttgaagct aggcggccct agagtcgacg gtacgatcca ccggtcgcca 180
ccatggtgag caagggcgag gagctgttca ccggggtggt gcccatcctg gtcgagctgg 240
acggcgacgt aaacggccac aagttcagcg tgtccggcga gggcgagggc gatgccacct 300
acggcaaget gaccetgaag tteatetgea ecaceggeaa getgeeegtg eeetggeeea 360
ccctcgtgac caccttcggc tacggcctgc agtgcttcgc ccgctacccc gaccacatga 420
agcagcacga cttcttcaag tccgccatgc ccgaaggcta cgtccaggag cgcaccatct 480
tetteaagga egaeggeaae tacaagaeee gegeegaggt gaagttegag ggegaeaeee 540
tggtgaaccg catcgagctg aagggcatcg acttcaagga ggacggcaac atcctggggc 600
acaagctgga gtacaactac aacagccaca acgtctatat catggccgac aagcagaaga 660
acggcatcaa ggtgaacttc aagatccgcc acaacatcga ggacggcagc gtgcagctcg 720
ccgaccacta ccagcagaac accccatcg gcgacggccc cgtgctgctg cccgacaacc 780
actacctgag ctaccagtcc gccctgagca aagaccccaa cgagaagcgc gatcacatgg 840
tcctgctgga gttcgtgacc gccgccggga tcactctcgg catggacgag ctgtacaagt 900
aaagcggccg cgactctaga tcataatcag ccataccaca tttgtagagg ttttacttgc 960
tttaaaaaac ctcccacacc tccccctgaa cctgaaacat aaaatgaatg caattgttgt 1020
tgttaacttg tttattgcag cttataatgg ttacaaataa agcaatagca tcacaaattt 1080
cacaaataaa gcatttttt cactgcattc tagttgtggt ttgtccaaac tcatcaatgt 1140
atcaagetta tegataegeg taeggegege etaggeegge egatetegeg egeeaaaage 1200
ttctgtctct ctttctgtaa taaactaacg atttataaag tataaaatgt cgtaatgttt 1260
atttttggca acatgagttt aattcgaaat tgaatcaaac acaataaaaa aaagttaaaa 1320
ggttaaaatc attatattac atcattaatt cgaattatcg ttaatatgga tcaatttgaa 1380
cagttgatta acgtgtctct gctcaagtct ttgatcaaaa cgcaaatcga cgaaaatgtg 1440
tcggacaata tcaagtcgat gagcgaaaaa ctaaaaaggc tagaatacga caatctcaca 1500
gacagcgttg agatatacgg tattcacgac agcaggctga ataataaaaa aattagaaac 1560
tattatttaa ccctagaaag ataatcatat tgtgacgtac gttaaagata atcatgcgta 1620
aaattgacgc atgtgtttta tcggtctgta tatcgaggtt tatttattaa tttgaataga 1680
tattaagttt tattatattt acacttacat actaataata aattcaacaa acaatttatt 1740
tatgtttatt tatttattaa aaaaaaacaa aaactcaaaa tttcttctat aaagtaacaa 1800
aacttttaaa cattctctct tttacaaaaa taaacttatt ttgtacttta aaaacagtca 1860
tgttgtatta taaaataagt aattagctta acttatacat aatagaaaca aattatactt 1920
attagtcagt cagaaacaac tttggcacat atcaatatta tgctctcgac aaataacttt 1980
tttgcatttt ttgcacgatg catttgcctt tcgccttatt ttagaggggc agtaagtaca 2040
gtaagtacgt tttttcatta ctggctcttc agtactgtca tctgatgtac caggcacttc 2100
atttggcaaa atattagaga tattatcgcg caaatatctc ttcaaagtag gagcttctaa 2160
acgettacge ataaacgatg acgteagget catgtaaagg ttteteataa attttttgeg 2220
actttggacc ttttctccct tgctactgac attatggctg tatataataa aagaatttat 2280
gcaggcaatg tttatcattc cgtacaataa tgccataggc cacctattcg tcttcctact 2340
gcaggtcatc acagaacaca tttggtctag cgtgtccact ccgcctttag tttgattata 2400
atacataacc atttgcggtt taccggtact ttcgttgata gaagcatcct catcacaaga 2460
tgataataag tataccatct tagctggctt cggtttatat gagacgagag taaggggtcc 2520
gtcaaaacaa aacatcgatg ttcccactgg cctggagcga ctgtttttca gtacttccgg 2580
tatctcgcgt ttgtttgatc gcacggttcc cacaatggta attcgagctc gcccggggat 2640
ctaattcaat tagagactaa ttcaattaga gctaattcaa ttaggatcca agcttatcga 2700
tttcgaaccc tcgaccgccg gagtataaat agaggcgctt cgtctacgga gcgacaattc 2760
aattcaaaca agcaaagtga acacgtcgct aagcgaaagc taagcaaata aacaagcgca 2820
gctgaacaag ctaaacaatc ggggtaccgc tagagtcgac ggtaccgcgg gcccgggatc 2880
caccggtcgc caccatggtg cgctcctcca agaacgtcat caaggagttc atgcgcttca 2940
aggtgcgcat ggagggcacc gtgaacggcc acgagttcga gatcgagggc gagggcgagg 3000
gccgccccta cgagggccac aacaccgtga agctgaaggt gaccaagggc ggccccctgc 3060
ccttcgcctg ggacatcctg tcccccagt tccagtacgg ctccaaggtg tacgtgaagc 3120
accccgccga catccccgac tacaagaagc tgtccttccc cgagggcttc aagtgggagc 3180
gcgtgatgaa cttcgaggac ggcggcgtgg tgaccgtgac ccaggactcc tccctgcagg 3240
acggctgctt catctacaag gtgaagttca tcggcgtgaa cttcccctcc gacggccccg 3300
taatgcagaa gaagaccatg ggctgggagg cctccaccga gcgcctgtac ccccgcgacg 3360
gcgtgctgaa gggcgagatc cacaaggccc tgaagctgaa ggacggcggc cactacctgg 3420
tggagttcaa gtccatctac atggccaaga agcccgtgca gctgcccggc tactactacg 3480
tggactccaa gctggacatc acctcccaca acgaggacta caccatcgtg gagcagtacg 3540
```

```
agegeacega gggeegeeac caectgttee tgtageggee gegaetetag ateataatea 3600
gccataccac atttgtagag gttttacttg ctttaaaaaa cctcccacac ctcccctga 3660
acctgaaaca taaaatgaat gcaattgttg ttgttaactt gtttattgca gcttataatg 3720
gttacaaata aagcaatagc atcacaaatt tcacaaataa agcatttttt tcactgcatt 3780
ctagttgtgg tttgtccaaa ctcatcaatg tatcaagett atcgatacgc gtacggcgcg 3840
aattcatttg ggaagtttgt gggtctattt tttaaacttt atatgaatgt ttgtttagtt 3900
aatttaataa aggatatcga acagtatgcc agttttggta tttagccaat tggagatgtt 3960
cgatgagatg ttcgaactgc aaccgagttc gaggttccaa cacgactgtt atacgggttc 4020
cageetteaa gttetacaga acaagteeac gagegeeaca cacagteeac agteeacact 4080
ccactccgct cggcgtggaa gccattcgct tcgtggcgaa gtgtttgttt atccagttga 4140
cagtttgtgg aaaatcgtca cggtgagcgg atcaaacgcg gaaaacgaac gcggacgaac 4200
ggcgagaaaa gcgaggaaaa acgggtgcag agacagagac tgattgggaa atatgtgcgc 4260
ctgagttttc ccggccagaa ggcaaagtgc caaatgctct gacaaataat tcctgtaata 4320
atcagegega ttgaaatcaa egegaegete gtaaaattge aaatgeageg caaaaagtga 4380
acagcagtgc agcggaaatt aaatcgtttt agcgagtgcc aaacgggaaa tagaaaatcg 4440
gcagagtagc cgaactgcag ttaaaactat ctcttcctct tattgcgact aaacaaccgg 4500
cggattaatc gaatccgaaa gatggccccc aacttgctaa caatcggatt acttttgacc 4560
ctgatcgcca gcggtcaggc ccatctcaat attttcctca acttgcacga ggtgctgcgc 4620
ctaatcggta agtaatcgtg ttgattttcg cctgcctttt ggcttttcaa ttaactgggc 4680
aattatttgc cactttgtgt gcgttcgttc gactttaaat caaatttgat ttatgccaag 4740
ccgggatttt gtctcctggg caaacgaatg cgacttgctg ggattattta ctctttttgc 4800
gtaaataata tatgcctttt aattgtttct agcctcggag ctacatataa agtagtattg 4860
teceteette aattggeeag eteacegaga aacaagaaaa cattetattt gtetageatg 4920
atttcctgtt tctttgattt aattgttcgt tagacttatc tagataaata gaaatgctaa 4980
agcgatttaa atttgtattt ctttgcgtta aattaaattc gattggcaag tggattcatc 5040
tctagataag taatccctct ataatcaaag tttttattta aaaaatcata ttttttcata 5100
gtttatccaa tttaaaacaa tacaaaacaa ttttagatat attttataaa cgtcttcaaa 5160
agaaaataaa tagtaaaatc atgtagtcaa aaaatgacac caaaatgagt atttaaatat 5220
ttagtttagt ttagtttata ttatttattt agcctaacta ttttccatag aagaatacta 5280
ctctaataag cttggggtac ccggggatct tgaagttcct attccgaagt tcctattctt 5340
caaatagtat aggaacttca gatccgaccg cggacatgta cagagctcga gaagtactag 5400
tggccacgtg ggccgtgcac cttaagcttg gcactggccg tcgttttaca acgtcgtgac 5460
tgggaaaacc ctggcgttac ccaacttaat cgccttgcag cacatccccc tttcgccagc 5520
tggcgtaata gcgaagaggc ccgcaccgat cgcccttccc aacagttgcg cagcctgaat 5580
ggcgaatggc gcctgatgcg gtattttctc cttacgcatc tgtgcggtat ttcacaccgc 5640
atacgtcaaa gcaaccatag tacgcgccct gtagcggcgc attaagcgcg gcgggtgtgg 5700
tggttacgcg cagcgtgacc gctacacttg ccagcgccct agcgcccgct cctttcgctt 5760
tetteeette etttetegee aegttegeeg gettteeeeg teaageteta aateggggge 5820
tccctttagg gttccgattt agtgctttac ggcacctcga ccccaaaaaa cttgatttgg 5880
gtgatggttc acgtagtggg ccatcgccct gatagacggt ttttcgccct ttgacgttgg 5940
agtccacgtt ctttaatagt ggactcttgt tccaaactgg aacaacactc aaccctatct 6000
cgggctattc ttttgattta taagggattt tgccgatttc ggcctattgg ttaaaaaatg 6060
agctgattta acaaaaattt aacgcgaatt ttaacaaaat attaacgttt acaattttat 6120
ggtgcactct cagtacaatc tgctctgatg ccgcatagtt aagccagccc cgacacccgc 6180
caacacccgc tgacgcgccc tgacgggctt gtctgctccc ggcatccgct tacagacaag 6240
ctgtgaccgt ctccgggagc tgcatgtgtc agaggttttc accgtcatca ccgaaacgcg 6300
cgagacgaaa gggcctcgtg atacgcctat ttttataggt taatgtcatg ataataatgg 6360
tttcttagac gtcaggtggc acttttcggg gaaatgtgcg cggaacccct atttgtttat 6420
ttttctaaat acattcaaat atgtatccgc tcatgagaca ataaccctga taaatgcttc 6480
aataatattg aaaaaggaag agtatgagta ttcaacattt ccgtgtcgcc cttattccct 6540
tttttgcggc attttgcctt cctgtttttg ctcacccaga aacgctggtg aaagtaaaag 6600
atgctgaaga tcagttgggt gcacgagtgg gttacatcga actggatctc aacagcggta 6660
agateettga gagttttege eeegaagaae gtttteeaat gatgageaet tttaaagtte 6720
tgctatgtgg cgcggtatta tcccgtattg acgccgggca agagcaactc ggtcgccgca 6780
tacactattc tcagaatgac ttggttgagt actcaccagt cacagaaaag catcttacgg 6840
atggcatgac agtaagagaa ttatgcagtg ctgccataac catgagtgat aacactgcgg 6900
ccaacttact tctgacaacg atcggaggac cgaaggagct aaccgctttt ttgcacaaca 6960
tgggggatca tgtaactcgc cttgatcgtt gggaaccgga gctgaatgaa gccataccaa 7020
```

```
acgacgageg tgacaccacg atgcctgtag caatggcaac aacgttgcgc aaactattaa 7080
ctggcgaact acttactcta gcttcccggc aacaattaat agactggatg gaggcggata 7140
aagttgcagg accaettetg egeteggeee tteeggetgg etggtttatt getgataaat 7200
ctggagccgg tgagcgtggg tctcgcggta tcattgcagc actggggcca gatggtaagc 7260
cctcccgtat cgtagttatc tacacgacgg ggagtcaggc aactatggat gaacgaaata 7320
gacagatcgc tgagataggt gcctcactga ttaagcattg gtaactgtca gaccaagttt 7380
acticatatat actitagati gatttaaaac ticattitta atttaaaagg atctaggtga 7440
agateetttt tgataatete atgaccaaaa teeettaaeg tgagtttteg tteeaetgag 7500
cgtcagaccc cgtagaaaag atcaaaggat cttcttgaga tccttttttt ctgcgcgtaa 7560
tctgctgctt gcaaacaaaa aaaccaccgc taccagcggt ggtttgtttg ccggatcaag 7620
agctaccaac tettttteeg aaggtaactg getteageag agegeagata ceaaatactg 7680
ttcttctagt gtagccgtag ttaggccacc acttcaagaa ctctgtagca ccgcctacat 7740
acctegetet getaateetg ttaccagtgg etgetgecag tggegataag tegtgtetta 7800
ccgggttgga ctcaagacga tagttaccgg ataaggcgca gcggtcgggc tgaacggggg 7860
gttegtgeae acageceage ttggagegaa egaeetacae egaaetgaga taeetacage 7920
gtgagctatg agaaagcgcc acgcttcccg aagggagaaa ggcggacagg tatccggtaa 7980
gcggcagggt cggaacagga gagcgcacga gggagcttcc agggggaaac gcctggtatc 8040
tttatagtcc tgtcgggttt cgccacctct gacttgagcg tcgatttttg tgatgctcgt 8100
caggggggg gagcctatgg aaaaacgcca gcaacgcggc ctttttacgg ttcctggcct 8160
tttgctqqcc ttttqctcac atgttctttc ctgcgttatc ccctgattct gtggataacc 8220
gtattaccgc ctttgagtga gctgataccg ctcgccgcag ccgaacgacc gagcgcagcg 8280
agtcagtgag cgaggaagcg gaagagcgcc caatacgcaa accgcctctc cccgcgcgtt 8340
ggccgattca ttaatgcagc tggcacgaca ggtttcccga ctggaaagcg ggcagtgagc 8400
gcaacgcaat taatgtgagt tagctcactc attaggcacc ccaggcttta cactttatgc 8460
ttccggctcg tatgttgttg ggaattgtga gcggataaca atttcacaca ggaaacagct 8520
atgaccatga ttacgaattg atccaagett atcgattteg aaccetegae egeeggagta 8580
<210> 4
<211> 67
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic FRT
      sequence
ttgaagttcc tattccgaag ttcctattct ctagaaagta taggaacttc agagcgcttt 60
tgaagct
<210> 5
<211> 26
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
     primer
<400> 5
                                                                26
gagettaagg gtaccegggg atettg
```

```
<210> 6
<211> 31
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      primer
<400> 6
gactagtcga tatctagggc cgcctagctt c
                                                                   31
<210> 7
<211> 33
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      primer
<400> 7
                                                                   33
ttggcgcgcc aaaagcttct gtctctcttt ctg
<210> 8
<211> 35
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic
      primer
<400> 8
                                                                  35
cggggtaccc caagcttatt agagtagtat tcttc
<210> 9
<211> 31
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      primer
                                                                    31
ttggcgcgcc aaggggtacc cggggatctt g
<210> 10
<211> 46
<212> DNA
<213> Artificial Sequence
```

<220> <223> Description of Artificial Sequence: Synthetic primer	
<400> 10 ccgctcgagc ggaagatctg aagttcctat actatttgaa gaatag	46
<210> 11 <211> 57 <212> DNA <213> Artificial Sequence	
<220> <223> Description of Artificial Sequence: Synthetic FRT sequence	
<400> 11 ttgaagttcc tattccgaag ttcctattct tcaaatagta taggaacttc agagcgc	57
<210> 12 <211> 17 <212> DNA <213> Artificial Sequence	
<220> <223> Description of Artificial Sequence: Synthetic primer	
<400> 12 cggcgactga gatgtcc	17
<210> 13 <211> 20 <212> DNA <213> Artificial Sequence	
<220> <223> Description of Artificial Sequence: Synthetic primer	
<400> 13 ccctagaaag atagtctgcg	20
<210> 14 <211> 25 <212> DNA <213> Artificial Sequence	
<220> <223> Description of Artificial Sequence: Synthetic primer	
<400> 14 atcagtgaca cttaccgcat tgaca	25

```
<210> 15
<211> 21
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      primer
<400> 15
                                                                    21
ccagagcgat acagaagaag c
<210> 16
<211> 20
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
<400> 16
                                                                    20
tgttcagtgc agagactcgg
<210> 17
<211> 25
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      primer
<400> 17
                                                                    25
tatgagttaa atcttaaaag tcacg
<210> 18
<211> 27
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic
      primer
<400> 18
                                                                    27
gttgaattta ttattagtat gtaagtg
<210> 19
<211> 19
<212> DNA
<213> Artificial Sequence
```

```
<220>
<223> Description of Artificial Sequence: Synthetic
      primer
<400> 19
                                                                   19
agaagaacgg catcaaggc
<210> 20
<211> 20
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
<400> 20
                                                                    20
actccaagct ggacatcacc
<210> 21
<211> 22
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic
      primer
<400> 21
                                                                    22
cqcaqacgaa gaacaaacag ta
<210> 22
<211> 23
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic
      primer
<400> 22
                                                                    23
gctgtttgct ttgttgttgt cat
<210> 23
<211> 19
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      primer
```

<400>	23	
ggcca	cacq atttatggc	19
<210>	24	
<211>	21	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
	Description of Artificial Sequence: Synthetic primer	
	Primar	
<400>	24	
attat	tttt ggcaacatga g	21